

WHAT IS CLAIMED IS:

1. An apparatus for folding sheet material, comprising:
a fold blade;
two fold rollers;
a pinch foot for clamping against the fold blade; and
drive means for moving at least one of the fold blade and the fold rollers into operable communication with one another, wherein each of the fold rollers rotates about an axis parallel to a longitudinal axis of the fold blade.
2. The apparatus of claim 1, wherein the drive means comprises:
a coupling; and
a lead screw attached to the coupling, wherein a rotation of the lead screw in a first direction is operable to move the fold rollers against the fold blade.
3. The apparatus of claim 1, wherein the fold blade includes a rounded folding surface.
4. The apparatus of claim 3, wherein at least one of the size and shape of the rounded folding surface is adjustable.

Attorney Docket No.: 10013280

5. The apparatus of claim 2, comprising:
a housing to which the fold rollers are rotatably mounted, wherein the housing is attached to the coupling.
6. The apparatus of claim 5, wherein the pinch foot is elastically mounted to the housing.
7. The apparatus of claim 6, wherein each fold roller comprises:
multiple sub-rollers.
8. The apparatus of claim 7, wherein the pinch foot is positioned in a space between two sub-rollers.
9. The apparatus of claim 1, wherein the fold blade is positioned in a plane which passes between the fold rollers.
10. The apparatus of claim 1, wherein the housing comprises:
two fold flaps for forcing a sheet material around the fold blade.

11. The apparatus of claim 10, wherein the fold flaps are pivotably biased towards each other.
12. The apparatus of claim 10, wherein the fold rollers are rotatably mounted on the fold flaps such that the fold rollers are biased towards each other.
13. The apparatus of claim 1, wherein the drive means moves the fold roller along linear path orthogonal to the sheet material to be folded.
14. A method for folding a sheet of material, comprising the steps of:
feeding a sheet material into an area between two fold rollers and a fold blade;
clamping the sheet material against the fold blade with a pinch foot; and
moving the fold rollers and the fold blade relative to one another to form a fold in the sheet using the fold blade, wherein the fold roller rotates about an axis parallel to a longitudinal axis of the fold blade.
15. The method of claim 14, wherein the fold is formed by moving the fold rollers relative to the fold blade such that the fold blade and the sheet material pass between the fold rollers.

Attorney Docket No.: 10013280

16. The method of claim 14, wherein the feeding step comprises the step of:
guiding the sheet material past the fold blade with a guide.

17. The method of claim 16, wherein the guide moves away from the fold blade
as the fold is formed.

18. The method of claim 14, comprising the step of:
scoring the sheet material with a scoring roller.

19. The method of claim 14, wherein each fold roller comprises:
multiple sub-rollers, wherein a cumulative length of the sub-rollers and
spaces between the sub-rollers is at least the length of a desired fold.

10013280 05/29/2009

add
N1